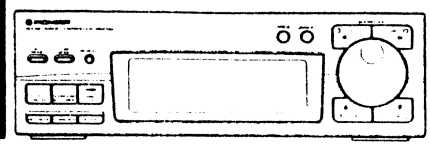
PIONEER®
The Art of Entertainment

Service Manual



SOUND IMAGE CONTROLLER

GR-P720

GR-P720 HAS THE FOLLOWING :

Type	Power Requirement	Remarks
AE	AC power supplied from power transformer's secondary of other system component	
AB		
AUC		
AD		
AEWZIW		

- **This manual is applicable to AE and AB types.**
- **As to the other type(s), refer to applicable service manual(s).**
- **This product is a component of systems. As to the system composition, refer to the system manual(s).**
- **This product does not function properly when independent ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.**

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: (03) 580-9911

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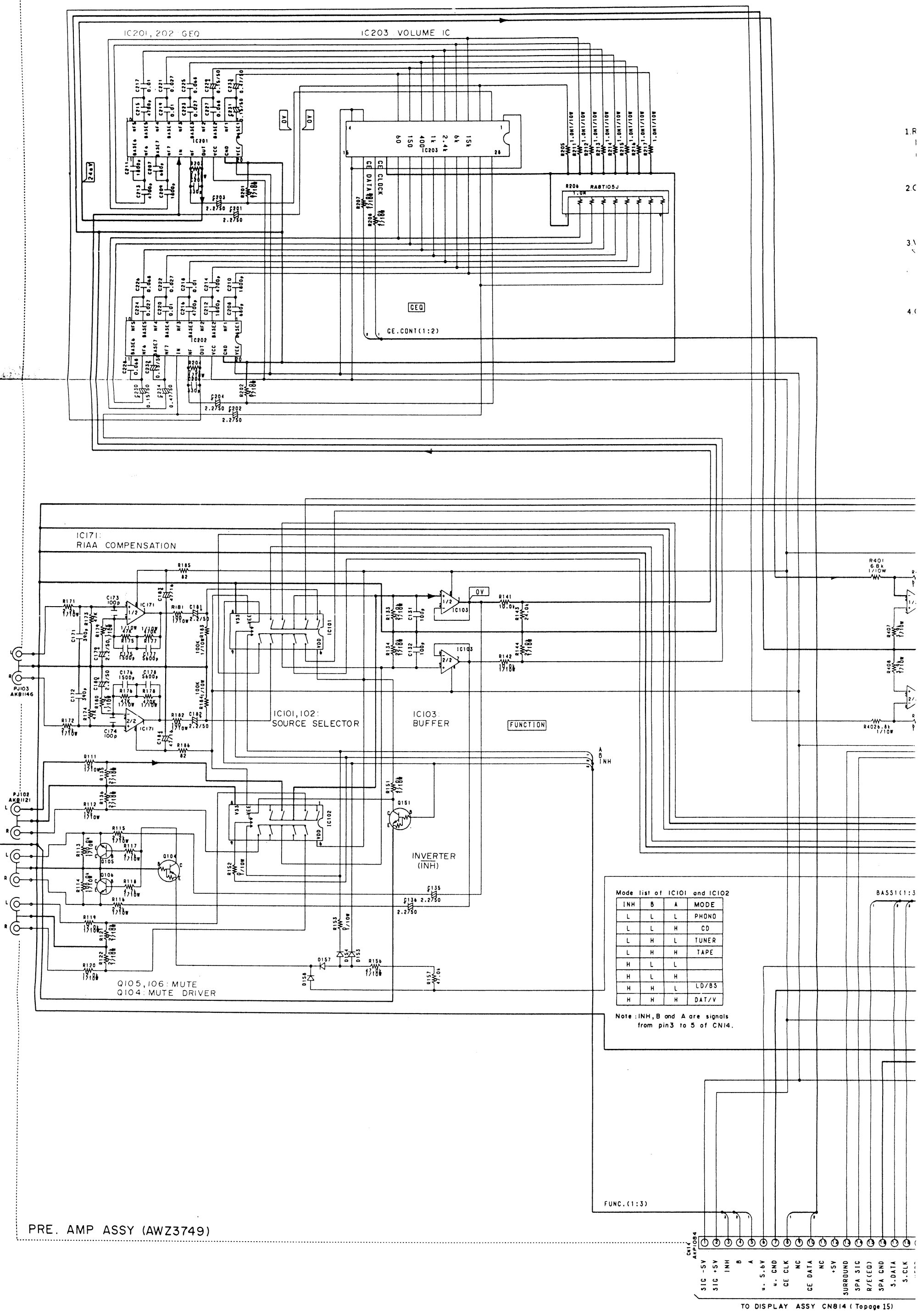
2. SCHEMATIC DIAGRAMS AND PCB CONNECTIONS DIAGRAMS

2.1 PRE.AMP ASSY (AWZ3749) AND SUB.POWER ASSY(AWZ3754)



1.RESISTORS :
Indicated in Ω, 1/4W, 1/6W and 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%, (M) ; ±20% tolerance.

2.CAPACITORS :
Indicated in capacity (μF)/voltage(V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3.VOLTAGE, CURRENT :
; DC voltage (V) at no input signal unless otherwise noted.
⇦mA or ←mA ; DC current at no input signal unless otherwise noted.

4.OTHERS :
➡ ; Signal route.
⊘ ; Adjusting point
The ⚠ mark found on some component parts indicates the inportance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES : (The underlined indicates the switch position)
DISPLAY ASSY
S801 MEMORY
S802 PGM MODE
S803 SFC MODE
S804 EQ
S805 SURR. & ST. WIDE
S806 EFFECT ON/OFF
S807 DISPLAY
S808 STANDARD
S809 REC MODE
S810 WARM
S811 SHARP
S812 MILD
S813 VIVID
S814 IMAGE
S815 FREQ

——— : Lch

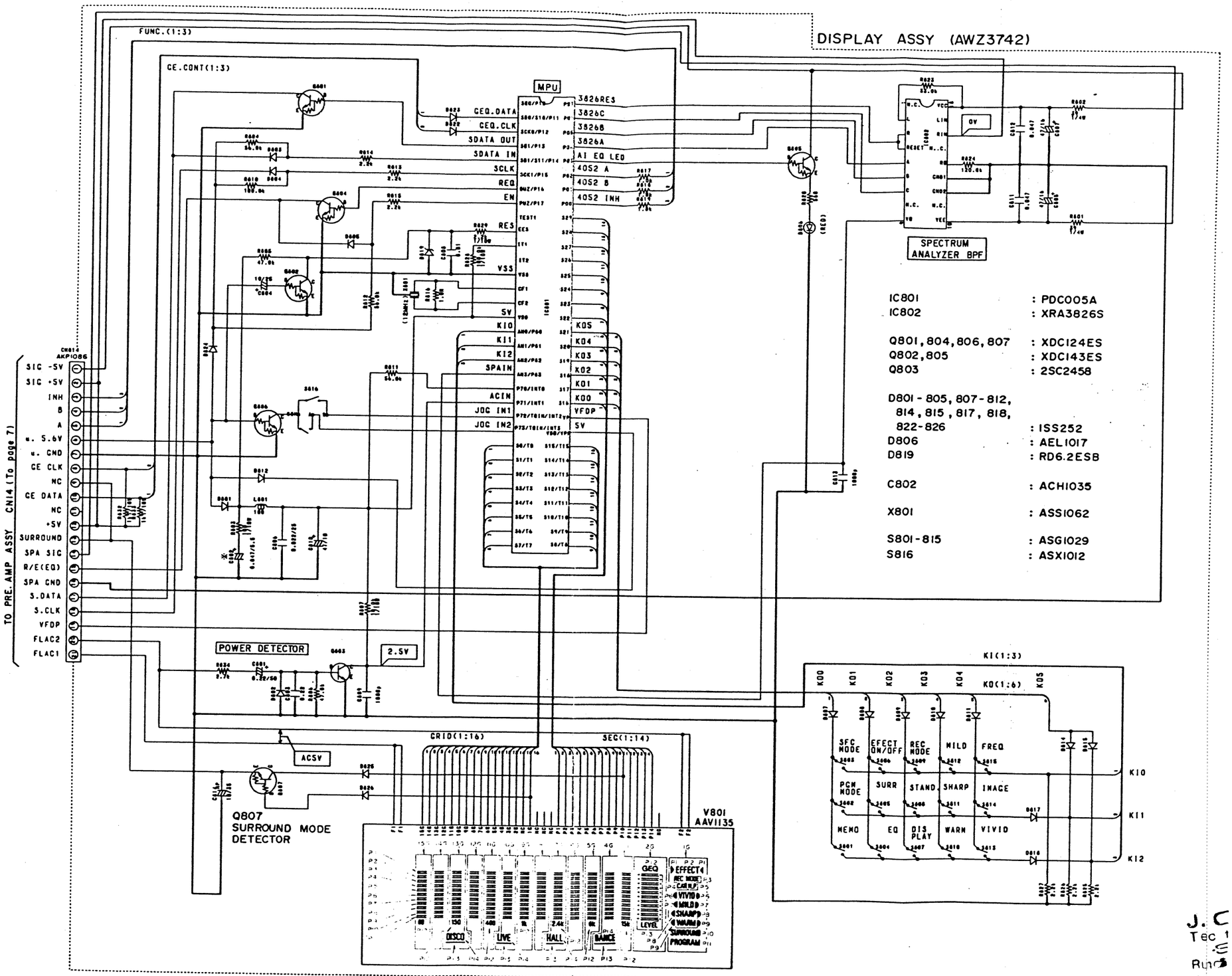
IC101, 102 : MC14052BF
IC103, 171 : NJM4558M-D
IC201, 202 : LA3607
IC203 : LC7522
IC401, 451 : NJM4558M-D
IC51 : NJM78M05FAS
IC52 : NJM79M05FA
IC53 : NJM78M56FAS

Q104 : XDA124ES
Q105, 106 : 2SC2878
Q151 : XDC143ES
Q451 : 2SK246

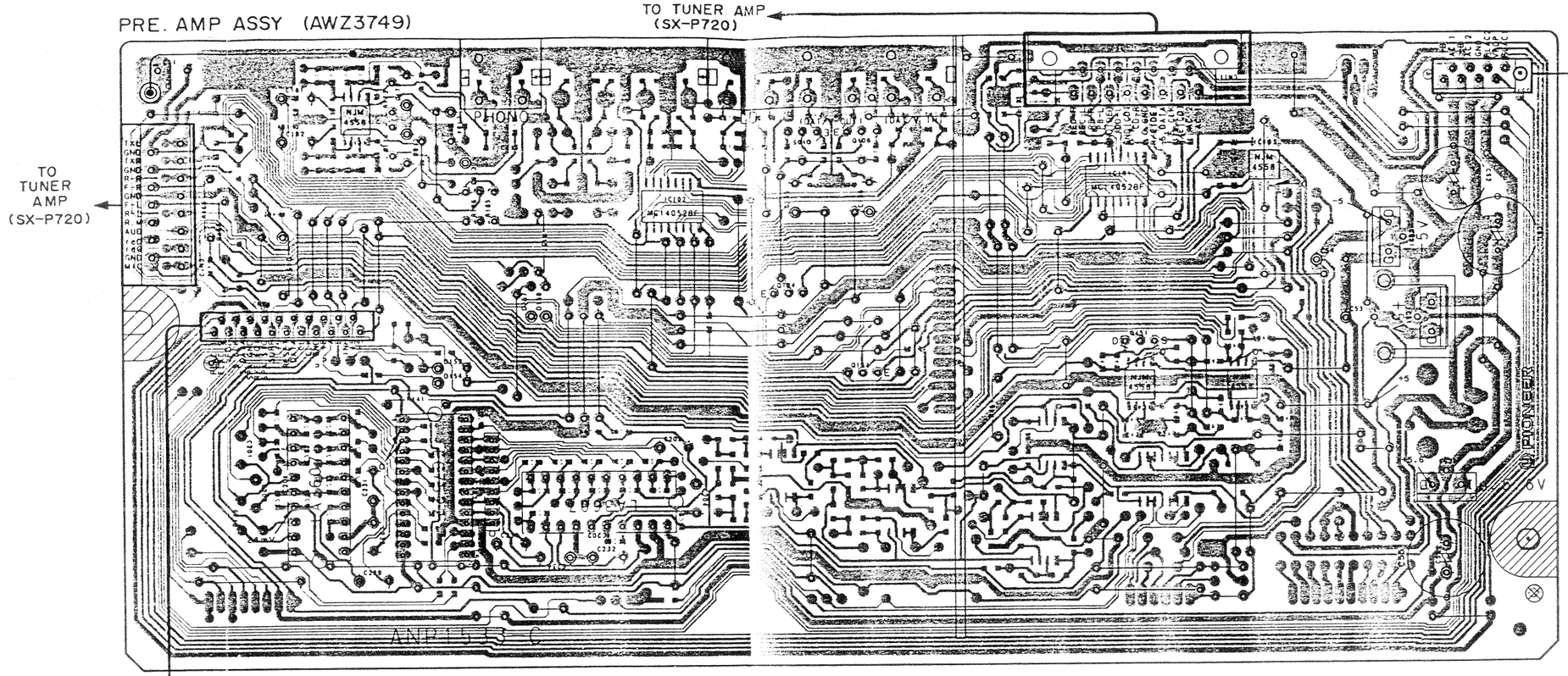
D153, 154, 157, D158, 451 : 1SS252

5 6 7 8 9

2.2 DISPLAY ASSY(AWZ3742)

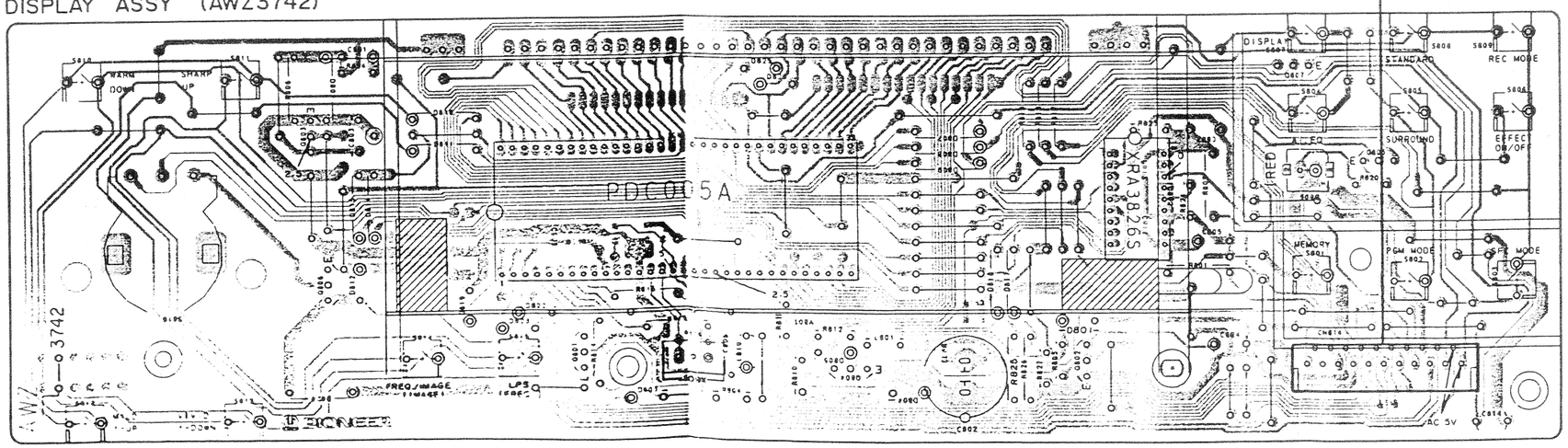


PRE. AMP ASSY (AWZ3749)



IC201 IC171 IC203 IC202 IC102 Q105 Q106 Q151 Q104 IC101 Q451 IC451 IC401 IC103 IC52 IC51 IC53

DISPLAY ASSY (AWZ3742)

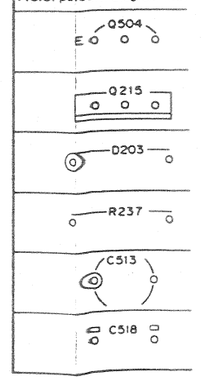


Q803 Q806 Q801 IC801 Q804 Q802 IC802 Q807 Q805

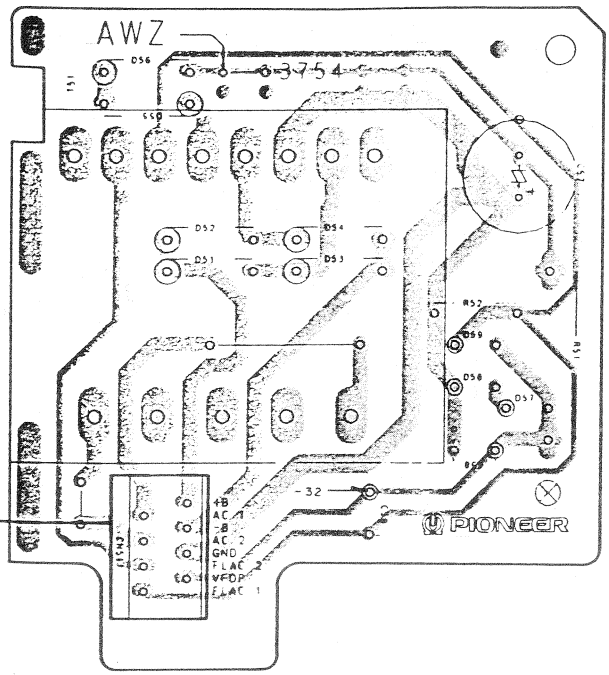
NOTE

1. This P.C.B connection c
2. The parts which have with the corresponding

P.C.B. pattern diagram indi



SUB. POWER ASSY (AWZ3754)



NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wirng symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504	or	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

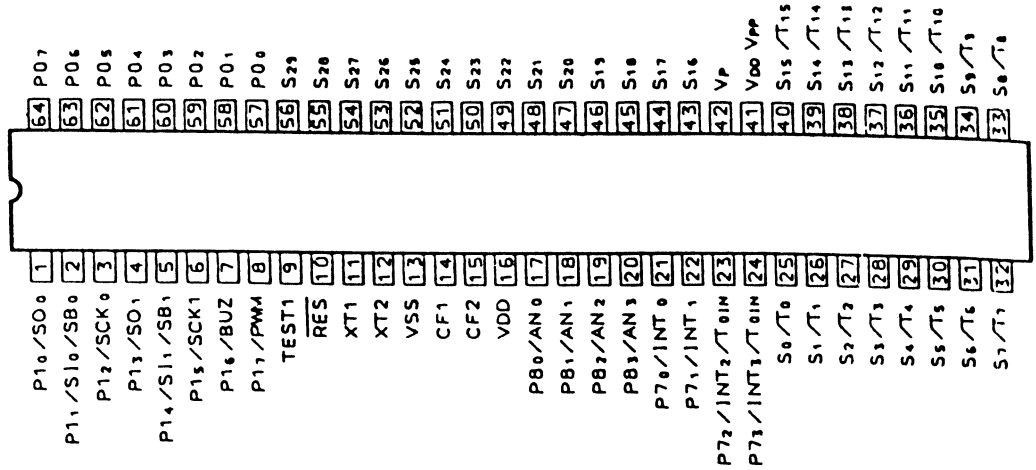
3. The capactor terminal marked with ◎ (double circles) shows negative terminal.
4. The diode terminal marked with ◎ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

4. IC INFORMATION

■ IC801 (PDC005A) :

GEQ Control MPU

- Pin Assignment (Top View)



- Pin Function

Pin	Pin Name	I/O	Function
1	PI0	O	Enable output for DSP control MPU (*1)
2	PI1/SB0	O	Data output for DSP control MPU
3	PI2/SCK0	O	Clock output for DSP control MPU
4	PI3	O	System bus DATA OUT
5	PI4	I	System bus DATA IN
6	PI5	O	System bus CLOCK
7	PI6	O	System bus request
8	PI7	I	System bus enable
9	TEST1	O	Test pin (open)
10	$\overline{RES}$	I	Reset
11	XT1	I	Not used (pull up)
12	XT2	O	Not used (open)
13	V_{ss}	I	GND
14	CF1	I	Input for ceramic oscillator
15	CF2	O	Output for ceramic oscillator
16	V_{cc}		Power supply
17	PS0	I	Key scan input (K10)
18	PS1	I	Key scan input (K11)

(*1) Not used for some products.

Pin	Pin Name	I/O	Function
19	P82	I	Key scan input (K12)
20	AN3	I	Analog input for Spectrum Analyzer
21	P70	I	Not used (pull up)
22	P71	I	AC input
23	P72	I	Rotary pulse encoder input
24	P73	I	Rotary pulse encoder input
25-40	T0-T15	O	FL Tube display grid output
41	V_{DD}VPP		Reference voltage for AD converter
42	VP		Minus power supply for FL tube display output
43	S16-S21	O	FL Tube display segment output/key scan output (KO0 to KO5)
44-56	S22-29	O	FL Tube display segment output
57	PO0	O	FUNCTION 4052 INH control
58	PO1	O	FUNCTION 4052 B control
59	PO2	O	FUNCTION 4052 A control
60	PO3	O	AI GEQ LED ON control
61	PO4	O	BA3826S A control
62	PO5	O	BA3826S B control
63	PO6	O	BA3826S C control
64	PO7	O	BA3826S RESET control

Mark	No.	Description	Parts No.
	IC201,202	GEQ IC	LA3607
	IC203	GEQ EVR IC	LC7522
	IC401,451	OP-AMP IC	NJM4558M
	Q104	TRANSISTOR	XDA124ES
	Q105,106	TRANSISTOR	2SC2878
	Q151	TRANSISTOR	XDC143ES
	Q451	N-FET	2SK246
	D153,154	DIODE	1SS252
	D157,158	DIODE	1SS252
	D451	DIODE	1SS252
CAPACITORS			
	C11	CERAMIC CAPACITOR	CKCYX104M16
	C51	ELECTR.CAPACITOR	CEAS222M16
	C52	ELECTR.CAPACITOR	CEAS102M16
	C53,54	ELECTROLYTIC CAPACIT	CEHAQ220M16
	C55	ELECTR.CAPACITOR	CEAS220M16
	C131,132	CHIP CAPACITOR	CCSQCH101J50
	C135,136	ELECTR.CAPACITOR	CEAS2R2M50
	C171,172	CHIP CAPACITOR	CCSQCH391J50
	C173,174	CHIP CAPACITOR	CCSQCH101J50
	C175,176	CERAMIC CAPACITOR	CKSQYB152K50
	C177,178	CERAMIC CAPACITOR	CKSQYB562K50
	C179-182	ELECTR.CAPACITOR	CEAS2R2M50
	C183,184	ELECTR.CAPACITOR	CEAS470M16
	C201-204	ELECTR.CAPACITOR	CEAS2R2M50
	C205,206	CERAMIC CAPACITOR	CCSQSL331J50
	C207,208	CERAMIC CAPACITOR	CKSQYB681K50
	C209-212	CERAMIC CAPACITOR	CKSQYB182K50
	C213-216	CERAMIC CAPACITOR	CKSQYB472K50
	C217-220	CERAMIC CAPACITOR	CKSQYB103K50
	C221-224	CERAMIC CAPACITOR	CKSQYB273K50
	C225-228	CERAMIC CAPACITOR	CKSQYF683Z50
	C229-232	ELECTROLYTIC CAPACIT	CEASR15M50
	C233,234	ELECTR.CAPACITOR	CEASR47M50
	C453,454	CERAMIC CAPACITOR	CKSQYB471K50
	C455	CERAMIC CAPACITOR	CKSQYB681K50
RESISTORS			
	R141	CARBONFILM RESISTOR	RD1/8PM103J
	R143	CARBONFILM RESISTOR	RD1/8PM243J
	R157	CARBONFILM RESISTOR	RD1/8PM473J
	R173,174	CARBONFILM RESISTOR	RD1/8PM473J
	R185,186	CARBONFILM RESISTOR	RD1/8PM820J
	R206	RESISTOR ARRAY (1M)	RA8T105J
	R461	CARBONFILM RESISTOR	RD1/8PM105J
	R465,466	CARBONFILM RESISTOR	RD1/8PM101J
	Other resistors		RS1/10S□□□J
OTHERS			
	PIN JACK(2P)		AKB1146
	PIN JACK(6P)		AKB1121
	SCREW		BBZ30P080FMC
	CN11	SOCKET(15P)	AKP1090
	CN12	CONNECTOR(15P)	KPE15
	CN14	21P SOCKET	AKP1084

Mark	No.	Description	Parts No.
◉SUB. POWER ASSY(AWZ3754)			
SEMICONDUCTORS			
	D51-56	DIODE	1SR139-400
	D57,58	ZENER DIODE	RD16ESB1
	D59	ZENER DIODE	RD10ESB
TRANSFORMER			
	T51	POWER TRANSFORMER	ATT1175
CAPACITORS			
	C57	ELECTR.CAPACITOR	CEAS471M50
	C58	ELECTR.CAPACITOR	CEAS470M50
	C59	ELECTR.CAPACITOR	CEAS470M16
RESISTORS			
	R51	METAL OXIDE RESISTOR	RS3LMF821J
	R52	CARBONFILM RESISTOR	RD1/2PM562J
OTHER			
	CN51	CONNECTOR(8P)	KPE8

3. PCB PARTS LIST

NOTES :

- *Part without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 *When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

560Ω	*56 × 10¹ 561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³ 473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*	*RD2H 0 R 5 K*
1Ω	*010*	*RD1P 0 1 0 K*

Ex.2 *When there are 3 effective digits (such as in high precision metal film resistors).*

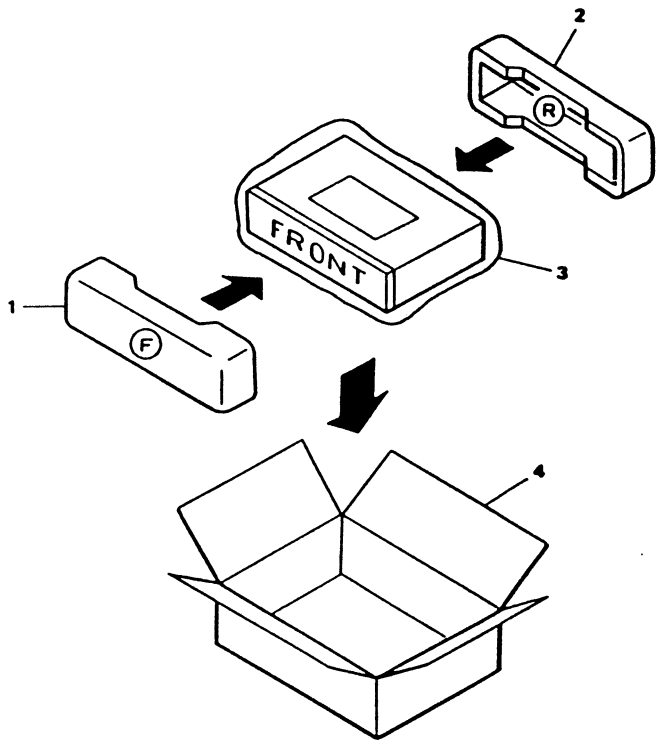
5.62kΩ	*562 × 10¹ 5621*	*RD1/4SR 5 6 2 1 F*

Mark	No.	Description	Parts No.
LIST OF ASSEMBLIES			
◉		DISPLAY ASSY	AWZ3742
◉		PRE.AMP ASSY	AWZ3749
◉		SUB.POWER ASSY	AWZ3754
◉DISPLAY ASSY(AWZ3742)			
SEMICONDUCTORS			
	IC801	GRQ MPU IC	PDC005A
	IC802	GEQ−BPF IC	XRA3826S
	Q801	TRANSISTOR	XDC124ES
	Q802	TRANSISTOR	XDC143ES
	Q803	TRANSISTOR	2SC2458
	Q804	TRANSISTOR	XDC124ES
	Q805	TRANSISTOR	XDC143ES
	Q806,807	TRANSISTOR	XDC124ES
	D801−805	DIODE	1SS252
	D806	LED(RED)	AEL1017
	D807−812	DIODE	1SS252
	D814,815	DIODE	1SS252
	D817,818	DIODE	1SS252
	D819	ZENER DIODE	RD6.2ESB
	D822−826	DIODE	1SS252
SWITCHES			
	S801−815	SWITCH	ASG1029
		MEMORY, PGM MODE, SFC MODE, EQ, SURR., EFFECT ON/OFF, DISPLAY, STANDARD, REC MODE, WARM, SHARP, MILD, VIVID, IMAGE, FREQ	
	S816	ROTARY ENCODER	ASX1012
COILS, FILTERS			
	L801	AXIAL INDUCTOR	LAU101K

Mark	No.	Description	Parts No.
CAPACITORS			
	C801	ELECTR.CAPACITOR	CEASR22M50
	C802	CEA (47000/5.5V)	ACH1035
	C803	AUDIO FILM CAPACITOR	CFTXA224J50
	C804	ELECTR.CAPACITOR	CEAS100M25
	C805	ELECTR.CAPACITOR	CEAS470M16
	C806	CERAMIC CAPACITOR	CKPUYF223Z25
	C807	ELECTR.CAPACITOR	CEAS470M16
	C808	CERAMIC CAPACITOR	CKSQYB103K50
	C809	CHIP CAPACITOR	CKSQYB102K50
	C810	ELECTR.CAPACITOR	CEAS470M10
	C811,812	CERAMIC CAPACITOR	CKSQYB473K50
	C813	CHIP CAPACITOR	CKSQYB102K50
	C814	ELECTROLYTIC CAPACIT	CEANP100M35
RESISTORS			
	R801,802	CARBON FILM RESISTOR	RD1/4PM390J
	R803	CHIP RESISTOR	RS1/10S101J
	R807	CHIP RESISTOR	RS1/10S103J
	R828	CHIP RESISTOR	RS1/10S104J
	R829	CHIP RESISTOR	RS1/10S222J
	R832,833	CHIP RESISTOR	RS1/10S102J
	Other resistors		RD1/8PM□□□
OTHERS			
	V801	FL TUBE	AAV1135
	X801	CERAMIC RESONATOR(12MHz)	ASS1062
	CN814	21P SOCKET	AKP1086
◉PRE. AMP ASSY(AWZ3749)			
SEMICONDUCTORS			
	IC51	REGULATOR IC	NJM78M05FAS
	IC52	REGULATOR IC	NJM79M05FA
	IC53	REGULATOR IC	NJM78M56FAS
	IC101,102	LOGIC IC	MC14052BF
	IC103,171	OP−AMP IC	NJM4558M

PACKING

Mark	No.	Description	Parts No.
	1	FRONT PAD	AHA1462
	2	REAR PAD	AHA1463
	3	PACKING SHEET	AHG1093
	4	PACKING CASE	AHD2180



ACCESSORIES

Mark	No.	Description	Parts No.
		CAUTION CARD	ARH1105
		REMOTE CONTROL UNIT (CU-SX035)	AXD1244
		CORD WITH PLUG	ADE1115
		FM ANTENNA	ADH1005
		BATTERY(R03, AAA)	
		LOOP ANTENNA	ATB1006
		BATTERY COVER	AZN2100